



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-IWinter 2023		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester:I	
	Name of Programme: M.Tech	Pattern:2022	
	Name of Course:Embedded Product Design	Course Code: ETC225101	
	Max. Marks:30	Duration:1 hour	

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question

**Question No. 1 Attempt following Question**

- a) List and define three main characteristics of embedded systems that distinguish such systems from other computing systems. Explain in detail. (7) 1

**OR**

- b) What is time to market design metric? Explain Market Window and why it is so important for products to reach the market early in this window? (7) 1
- c) Explain the need of hardware and software for embedded products. Explain partitioning of the design into its software and hardware components. (8) 1

**OR**

- d) State and explain any five design metrics used for design of an embedded systems. (8) 1

**Question No. 2 Attempt following Question**

- |    |   |     |   |
|----|---|-----|---|
| a) | List and define the three main Processor Technologies. What are the benefits of using each of the three different Processor Technologies? | (7) | 2 |
|----|---|-----|---|

**OR**

- |    |  |     |   |
|----|--|-----|---|
| b) | Explain Integrated Circuit technologies. Explain Semicustom ASIC and PLD in detail.                                | (7) | 2 |
| c) | Explain design technology. Explain three main approaches to improve the design process for increased productivity. | (8) | 2 |

**OR**

- |    |   |     |   |
|----|---|-----|---|
| d) | What are the models of development of hardware and software? Explain all in detail. | (8) | 2 |
|----|---|-----|---|